

CLAIMS

1. A method for determining the location and/or position of an object in a predetermined co-ordinate system, in which method in the object there
5 is arranged a set of signal sources in a known manner in relation to the co-ordinate system of the object, and in which

 sending a predetermined signal from the signal sources,

10 receiving the signal sent from the signal sources with a receiver which comprises at least one signal receiver, and

 computing the location and/or position of the object based on the received amplitudes of the signals, c h a r a c t e r i s e d in that

15 determining the amplitude independent of each other of the received signals so that numerically taking into account the correlation between the transmitted signals,

20 determining each signal source as being separate from the independent amplitudes, and

 computing the location of the object at the time interval being examined based on the independent amplitude distributions associated with the signal
25 sources by adjusting the numerical amplitudes of the signal sources to the amplitudes measured using the receiver.

2. The method according to claim 1, c h a r a c t e r i s e d in that

30 adjusting the amplitudes so that the geometrical free parameters of the signal sources and/or of the receiver are set to values by which the difference between the calculated and measured amplitude distributions is at its smallest,

35 computing the position of the signal sources in the co-ordinate system of both the object and the

measuring device from values set to free parameters,
and

computing the location and/position of the
object in relation to the receiver by using known lo-
5 cations of the signal sources.

3. The method according to claim 2, c h a r -
a c t e r i s e d in that in order to determine an in-
dividual signal source:

generating the product of a signal to be es-
10 timated for each signal specifically and of a signal
received by a receiver,

integrating the products over a predetermined
time T in order to obtain a preliminary result for the
measured amplitudes sent by the signal sources, and

15 generating the product of the preliminary re-
sult and of the correction coefficient, in which the
correction coefficient is a quantity describing the
correlation between the signals sent from different
signal sources, in order to obtain the amplitude of
20 the received signal for each signal specifically.

4. The method according to claim 2, c h a r -
a c t e r i s e d in that

generating the product of the signal to be
estimated, of the correction efficient and of the re-
25 ceived signal, in which the correction coefficient is
a quantity describing the correlation between the sig-
nals sent from different signal sources, and

integrating the products over a predetermined
time T in order to obtain a measuring result for the
30 measured amplitudes of the signals sent by the signal
sources.

5. The method according to claim 2, c h a r -
a c t e r i s e d in that

generating the signal product of the signal
35 to be estimated and of the chosen coefficient.

generating the product of the received signal product and of the received signal,

generating the products of the obtained signal product and of the received signal,

5 integrating the products over a predetermined time T in order to obtain a preliminary result for the measured amplitudes of the signals sent by the signal sources,

generating the product of the preliminary
10 measuring result and of the correction coefficient, in which the correction coefficient is a quantity describing the correlation between the signals sent from different signal sources and the effect of the chosen coefficient, in order to obtain the amplitude of the
15 received signal for each signal specifically.

6. The method according to any one of claims 3 - 5, characterised in that the products are accentuated by a window function w .

7. The method according to claim 1, characterised in that
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sending a signal in a sine form from the signal sources, and that

using in the computation as the estimated signal a signal of almost the same form as the sent
25 signal.

8. The method according to claim 7, characterised in that using in the computation a second signal being at the same frequency with the sent signal that has a difference in phase in relation
30 to the estimated signal.

9. The method according to claim 1, characterised in that sending the signals simultaneously from each signal source.

10. The method according to claim 1,
35 characterised in that

receiving useful signal by means of a receiver, and

filtering, by means of the signal source, the sent signals from the useful signal.

5 11. The method according to claim 1, characterised in that estimating signals that correspond to the signals of the signal sources attached to a moving object in a predetermined manner for estimating the motion of the object.

10 12. The method according to any one of claims 1 - 6, characterised in that the determination of the location and/or position of the object is repeated in order to determine the relative location of the object by repeating temporally overlapping
15 measuring periods.

13. The method according to claim 6, characterised in that using signal forms of known sources of interference as the estimated signal.

20 14. The method according to claim 1, characterised in that

generating a return switching from the obtained amplitudes to the signal sources, and

controlling the transmission power of the signal sources by means of the return switching.

25 15. The method according to any one of claims 1 - 14, characterised in that

subtracting the signals computed at the measured signals, and

30 specifying the measuring result by means of the remaining signal.

16. The method according to any one of claims 1 - 15, characterised in that

35 estimating one or more signals that differ from the signals of the signal sources or from those of the known sources of interference, and

specifying the location result based on the
obtained measuring result.